

## **SECTION 07920 - JOINT SEALANTS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. This Section includes sealants for the following applications, including those specified by reference to this Section:
- B. This Section includes sealants for the following applications:
  - 1. Exterior joints in the following vertical surfaces and non-traffic horizontal surfaces:
    - a. Control and expansion joints in unit masonry.
    - b. Joints in exterior insulation and finish systems.
    - c. Joints between different materials listed above.
    - d. Perimeter joints between materials listed above and frames of doors and windows.
    - e. Other joints as indicated.
  - 2. Exterior joints in the following horizontal traffic surfaces:
    - a. Control, expansion, and isolation joints in cast-in-place concrete slabs.
    - b. Other joints as indicated.
  - 3. Interior joints in the following vertical surfaces and horizontal non-traffic surfaces:
    - a. Perimeter joints of exterior openings where indicated.
    - b. Perimeter joints between interior wall surfaces and frames of interior doors and windows.
    - c. Other joints as indicated.
  - 4. Interior joints in the following horizontal traffic surfaces:
    - a. Other joints as indicated.
- C. Related Sections include the following:
  - 1. Division 7 Section "Through-Penetration Firestop Systems" for fire-resistant building joint-sealant systems.
  - 2. Division 8 Section "Glazing" for glazing sealants.
  - 3. Division 9 Section "Gypsum Board Assemblies" for sealing perimeter joints of gypsum board partitions to reduce sound transmission.
  - 4. Division 9 Section "Acoustical Panel Ceilings" for sealing edge moldings at perimeters of acoustical ceilings.

#### **1.3 PERFORMANCE REQUIREMENTS**

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.

1.4 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Product Certificates: Signed by manufacturers of joint sealants certifying that products furnished comply with requirements and are suitable for the use indicated.
- C. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- D. Compatibility and Adhesion Test Reports: From sealant manufacturer indicating the following:
  - 1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
  - 2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.
- E. Product Test Reports: From a qualified testing agency indicating sealants comply with requirements, based on comprehensive testing of current product formulations.
- F. Warranties: Special warranties specified in this Section.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has specialized in installing joint sealants similar in material, design, and extent to those indicated for this Project and whose work has resulted in joint-sealant installations with a record of successful in-service performance.
- B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.
- C. Product Testing: Obtain test results for "Product Test Reports" Paragraph in "Submittals" Article from a qualified testing agency based on testing current sealant formulations within a 36-month period.
- D. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings."

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multi-component materials.
- B. Store and handle materials in compliance with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

## 1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not proceed with installation of joint sealants under the following conditions:
  - 1. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer.
  - 2. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 40 deg F (4 deg C).
  - 3. When joint substrates are wet.
- B. Joint-Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.
- C. Joint-Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

## 1.8 WARRANTY

- A. General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Special Installer's Warranty: Written warranty, signed by Installer agreeing to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
  - 1. Warranty Period: Two years from date of Substantial Completion.
- C. Special warranties specified in this Article exclude deterioration or failure of elastomeric joint sealants from the following:
  - 1. Movement of the structure resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression caused by structural settlement or errors attributable to design or construction.
  - 2. Disintegration of joint substrates from natural causes exceeding design specifications.
  - 3. Mechanical damage caused by individuals, tools, or other outside agents.
  - 4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

## PART 2 - PRODUCTS

### 2.1 PRODUCTS AND MANUFACTURERS

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the products specified in the sealant schedules at the end of Part 3.

## 2.2 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
- B. Colors of Exposed Joint Sealants: Custom color to match adjacent materials. At wall to window or door to wall joints, match the wall color.

## 2.3 ELASTOMERIC JOINT SEALANTS

- A. Elastomeric Sealant Standard: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant in the Elastomeric Joint-Sealant Schedule at the end of Part 3, including those referencing ASTM C 920 classifications for type, grade, class, and uses.

## 2.4 PREFORMED JOINT SEALANTS

- A. Preformed Silicone-Sealant System: For each product of this description indicated in the Preformed Joint-Sealant Schedule at the end of Part 3, provide manufacturer's standard system consisting of pre-cured low-modulus silicone extrusion, in sizes to fit joint widths indicated, combined with a neutral-curing silicone sealant for bonding extrusions to substrates.
- B. Preformed Foam Sealants: For each product of this description indicated in the Preformed Joint-Sealant Schedule at the end of Part 3, provide manufacturer's standard preformed, pre-compressed, impregnated, open-cell foam sealant manufactured from high-density urethane foam impregnated with a nondrying, water-repellent agent; factory produced in pre-compressed sizes and in roll or stick form to fit joint widths indicated and to develop a watertight and airtight seal when compressed to the degree specified by manufacturer; and complying with the following:
  - 1. Properties: Permanently elastic, mildew resistant, non-migratory, non-staining, and compatible with joint substrates and other joint sealants.
  - 2. Impregnating Agent: Manufacturer's standard.
  - 3. Density: Manufacturer's standard.
  - 4. Backing: Pressure-sensitive adhesive, factory applied to one side with protective wrapping.

## 2.5 JOINT-SEALANT BACKING

- A. General: Provide sealant backings of material and type that are non-staining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, of type indicated below and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
  - 1. Type C: Closed-cell material with a surface skin.
  - 2. Type O: Open-cell material.
  - 3. Type: Any material indicated above.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint

surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

## 2.6 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants with joint substrates.
- C. Masking Tape: Non-staining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint sealant manufacturer's written instructions and the following requirements:
  - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
  - 2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.
  - 3. Remove laitance and form-release agents from concrete.
  - 4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
- B. Joint Priming: Prime joint substrates where recommended in writing by joint sealant manufacturer, based on pre-construction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by

cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

### 3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
  - 1. Do not leave gaps between ends of sealant backings.
  - 2. Do not stretch, twist, puncture, or tear sealant backings.
  - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and back of joints.
- E. Install sealants by proven techniques to comply with the following and at the same time backings are installed:
  - 1. Place sealants so they directly contact and fully wet joint substrates.
  - 2. Completely fill recesses provided for each joint configuration.
  - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Non-sag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
  - 1. Remove excess sealants from surfaces adjacent to joint.
  - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
  - 3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
- G. Installation of Preformed Foam Sealants: Install each length of sealant immediately after removing protective wrapping, taking care not to pull or stretch material, to produce seal continuity at ends, turns, and intersections of joints. For applications at low ambient temperatures where expansion of sealant requires acceleration to produce seal, apply heat to sealant to comply with sealant manufacturer's written instructions.

### 3.4 CLEANING

- A. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

### 3.5 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from the original work.

### 3.6 ELASTOMERIC JOINT-SEALANT SCHEDULE

- A. Low-Modulus Nonacid-Curing Silicone Sealant for interior use: Where joint sealants of this type are indicated, provide products complying with the following:
  - 1. Products: Available products include the following:
    - a. 790; Dow Corning.
    - b. Silpruf; GE Silicones.
    - c. UltraPruf SCS2300; GE Silicones.
    - d. 864; Pecora Corporation.
    - e. 890; Pecora Corporation.
    - f. Omniseal; Sonneborn Building Products Div., ChemRex Inc.
    - g. Spectrem 1; Tremco.
  - 2. Type and Grade: S (single component) and NS (non-sag).
  - 3. Class: 25.
  - 4. Additional Movement Capability: 50 percent movement in extension and 50 percent movement in compression for a total of 100 percent movement.
  - 5. Use Related to Exposure: NT (non-traffic).
  - 6. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.
  - 7. Stain-Test-Response Characteristics: Non-staining to porous substrates per ASTM C 1248.
  - 8. Applications: Interior locations.
- B. Ultra-Low-Modulus Nonacid-Curing Silicone Sealant for exterior use: Where joint sealants of this type are indicated, provide products complying with the following:
  - 1. Products: Provide one of the following:
    - a. 790; Dow Corning.
    - b. 890; Pecora Corporation.
    - c. 795; Dow Corning.
  - 2. Type and Grade: S (single component) and NS (non-sag).
  - 3. Class: 25.
  - 4. Additional Movement Capability: 50 percent movement in extension and 50 percent movement in compression for a total of 100 percent movement.
  - 5. Use Related to Exposure: NT (non-traffic).
  - 6. Stain-Test-Response Characteristics: Non-staining to porous substrates per ASTM C 1248.
  - 7. Applications: Expansion joints between panelized EIFS sections.
  - 8. Color: Match adjacent EIFS color.
- C. Single-Component Non-sag Urethane Sealant for exterior applications: Where joint sealants of this type are indicated, provide products complying with the following:
  - 1. Products: Provide one of the following:
    - a. Sikaflex – 15LM; Sika Corporation.
    - b. Sikaflex – 1a; Sika Corporation.

- c. Sonolastic 150; Sonneborn Building Products Div., ChemRex Inc.
2. Type and Grade: S (single component) and NS (non-sag).
3. Uses Related to Exposure: T (traffic) and NT (non-traffic).
4. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.
  - a. Use O Joint Substrates: Color anodic aluminum, galvanized steel, brick, and wood.
5. Applications: Exterior locations. Provide high-performance, low-modulus elastomeric sealant for perimeter seals around window, door, and other penetrations in EIFS sections.
6. Color: Provide custom color to match adjacent EIFS color.

### 3.7 PREFORMED JOINT-SEALANT SCHEDULE

- A. Preformed Foam Sealant: Where joint sealants of this type are indicated, provide products complying with the following:
  1. Products: Available products include the following:
    - a. Emseal 25V; Emseal Joint Systems, Ltd.
    - b. Emseal Greyflex; Emseal Joint Systems, Ltd.
    - c. Polytite B; Polytite Manufacturing Corporation.
    - d. Polytite Standard; Polytite Manufacturing Corporation.
    - e. Blocoband BF; Salamander Industrial Products Inc.
    - f. Blocoband HF; Salamander Industrial Products Inc.
    - g. Wilseal 600; Sealform, Ltd.
  2. Applications: Exterior joints.

END OF SECTION 07920